WHAT IS CLAIMED IS:

A method for manufacturing a semiconductor device comprising the 1. steps of:

forming a semiconductor film comprising amorphous silicon over a

5 substrate;

> crystallizing said semiconductor film by irradiating a laser light; forming an insulating film on the crystallized semiconductor film by a vapor phase deposition; and

thermal annealing said insulating film in an atmosphere comprising

10 an oxygen gas.

> 2. The method of claim 1 wherein said thermal annealing step is performed at a temperature from 1000 td 1200°C.

> 3. The method of claim 1 wherein said vapor phase deposition is a plasma CVD and a low pressured CVD.

The method of claim 1 wherein said thermal annealing step is 15 4. performed in order to reduce an interfacial layer density to 10¹¹ cm⁻² or lower.

The method of claim 1 wherein said laser light is selected from the group consisting of KrF excimer laser, ArF excimer laser, XeCl excimer laser and XeF excimer laser.

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6. A method of manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising amorphous silicon over a

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substrate;

crystallizing said semiconductor film by irradiating a laser light;

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forming an insulating film comprising silicon oxide on the crystallized semiconductor film by a vapor phase deposition; and

thermal annealing said insulating film in an atmosphere comprising an oxygen gas.

- 7. The method of claim 6 wherein said thermal annealing step is performed at a temperature from 1000 to 1200°C.
 - 8. The method of claim 6 wherein said vapor phase deposition is a plasma CVD and a low pressured CVD.
- 9. The method of claim 6 wherein said thermal annealing step is performed in order to reduce an interfacial layer density to 10¹¹ cm⁻² or lower.

The method of claim 6 wherein said laser light is selected from the group consisting of KrF excimer laser, ArF excimer laser, XeCl excimer laser and XeF excimer laser.

11. A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising amorphous silicon over a substrate;

crystallizing said semiconductor film by irradiating a laser light;
forming an insulating film comprising silicon oxide on the
crystallized semiconductor film by a vapor phase deposition; and

thermal annealing said insulating film in an atmosphere comprising an oxygen gas in order to reduce an interfacial layer density to 10¹¹ cm⁻² or lower.

12. The method of claim 11 wherein said thermal annealing step is performed at a temperature from 1000 to 1200°C.

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- 13. The method of claim 11 wherein said vapor phase deposition is a plasma CVD and a low pressured CVD.
- 14. The method of claim 11 wherein said laser light is selected from the group consisting of KrF excimer laser, ArF excimer laser, XeCl excimer laser and XeF excimer laser.

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15. A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising amorphous silicon over a

substrate;

providing said semiconductor film with a crystallization promoting

material;

crystal izing said semiconductor film by heating;

forming an insulating film on the crystallized semiconductor film by a vapor phase deposition; and

thermal annealing said insulating film in an atmosphere comprising an oxygen.

- 16. The method of claim 15 wherein said thermal annealing step is performed at a temperature from 1000 to 1200°C.
- 17. The method of claim 15 wherein said vapor phase deposition is a plasma CVD and a low pressured CVD.
 - 18. The method of claim 15 wherein said thermal annealing step is performed in order to reduce an interfacial layer density to 10¹¹ cm⁻² or lower.

- 19. The method of claim 15 wherein said crystallization promoting material comprises a metal selected from the group consisting of Ni, Fe, Co, Ru, Rh, Pd, Os, Ir, Pt, Sc, Ti, V, Cr, Mn, Cu, Zn, Au and Ag.
- 20. A method for manufacturing a semiconductor device comprising the steps of:

forming a semiconductor film comprising amorphous silicon over a

substrate;

providing said semiconductor film with a crystallization promoting

material;

10 crystallizing said semiconductor film by heating;

forming an insulating film comprising silicon oxide on the crystallized semiconductor film by a vapor phase deposition; and

thermal annealing said insulating film in an atmosphere comprising an oxygen gas.

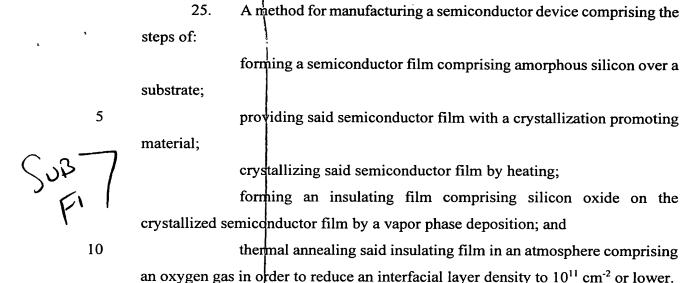
21. The method of claim 20 wherein said thermal annealing step is performed at a temperature from 1000 to 1200°C.

- 22. The method of claim 20 wherein said vapor phase deposition is a plasma CVD and a low pressured CVD.
- 23. The method of claim 20 wherein said thermal annealing step is performed in order to reduce an interfacial layer density to 10¹¹ cm⁻² or lower.
 - 24. The method of claim 20 wherein said crystallization promoting material comprises a metal selected from the group consisting of Ni, Fe, Co, Ru, Rh, Pd, Os, Ir, Pt, Sc, Ti, V, Cr, Mn, Cu, Zn, Au and Ag.

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- 26. The method of claim 25 wherein said thermal annealing step is performed at a temperature from 1000 to 1200 °C.
- 27. The method of claim 25 wherein said vapor phase deposition is a plasma CVD and a low pressured CVD.
- 28. The method of claim 25 wherein said crystallization promoting material comprises a metal selected from the group consisting of Ni, Fe, Co, Ru, Rh, Pd, Os, Ir, Pt, Sc, Ti, V, Cr, Mn, Cu, Zn, Au and Ag.



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